

Tassilo Wald

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Research Interest:

My research revolves around machine learning and its application in medical image analysis. Specifically, I'm interested in understanding the similarities and differences between deep neural networks to make ensembles more robust and prevent silent failures. Lately, I've also been exploring the potential of 3D vision foundation models for radiology, thanks to the advancements of SAM and SEEM.

Education:

Apr. 2020 – present: **German Cancer Research Center (DKFZ), Heidelberg**
Department for Medical Image Computing (MIC)
PhD Student in Computer Science
Advisor: Prof. Klaus H. Maier-Hein

- Representational Similarity
- Feature Diversity
- 3D Medical Image Segmentation

Apr 2016 – Aug. 2019: **Karlsruhe Institute of Technology (KIT),**
M.Sc. in Electrical Engineering and Information Theory Ø1,3

- Master thesis in computer vision (1,0): “Combination of Temporal and Spatial Information Extraction Within a CNN for Improving Object Detection”
- Specialization in control theory and machine learning

Other Research Experience:

Oct. 2019 – Mar. 2020: **FZI Research Center for Information Technology, Karlsruhe**
Student Assistant

- 2D+t Object detection
- Multi Task Learning

Dec. 2017 – Apr. 2018: **Bosch Japan, Yokohama**
Intern in the Engineering Application Product Department

- Automated evaluation of brake assistant validation and testing
- Neural network classification for ultrasound brake assistant

Jun. 2015 – Dec. 2016: **Institute of Systems Optimization (ITE), Karlsruhe**
Student Assistant

- Microcontroller software development
- System integration
- Experimental setup und evaluation

Publications:

1. **[MICCAI 2023]** Constantin Ulrich, Fabian Isensee, [Tassilo Wald](#), Maximilian Zenk, Michael Baumgartner, Klaus H. Maier-Hein. “MultiTalent: A Multi-Dataset Approach to Medical Image Segmentation,” *International Conference on Medical Image Computing and Computer-Assisted Intervention*, 2023 [\[PDF\]](#), [\(Oral\)](#)
2. **[MICCAI 2023]** Silvia D. Almeida*, Carsten T. Lüth*, Tobias Norajitra, [Tassilo Wald](#), Marco Nolden, Paul F. Jaeger, Claus P. Heussel, Jürgen Biederer, Oliver Weinheimer, Klaus H. Maier-Hein. “cOOpD: Reformulating COPD classification on chest CT scans as anomaly detection using contrastive

- representations,” *International Conference on Medical Image Computing and Computer-Assisted Intervention*, 2023 [[PDF](#)]
3. **[WACV 2024]** Gregor Köhler, [Tassilo Wald](#), Constantin Ulrich, David Zimmerer, Paul F. Jaeger, Jörg K. H. Franke, Simon Kohl, Fabian Isensee, Klaus H. Maier-Hein. “RecycleNet: Latent Feature Recycling Leads to Iterative Decision Refinement,” *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024. [[PDF](#)]
 4. **[SCIS 2023]** [Tassilo Wald](#), Constantin Ulrich, Fabian Isensee, David Zimmerer, Gregor Köhler, Michael Baumgartner, Klaus H. Maier-Hein. “Exploring new ways: Enforcing representational dissimilarity to learn new features and reduce error consistency,” *Workshop on Spurious Correlations, Invariance and Stability (SCIS) at ICML*, 2023. [[PDF](#)]
 5. **[BVM 2023]** Marc K. Ickler*, Michael Baumgartner*, Saikat Roy, [Tassilo Wald](#), Klaus H. Maier-Hein. „Taming Detection Transformers for Medical Object Detection,” *Bildverarbeitung für die Medizin (BVM)*, 2023. (Nominated for best paper & Oral) [[PDF](#)]
 6. **[MIDL short 2023]** Saikat Roy*, [Tassilo Wald](#)*, Gregor Köhler*, Maximilian R. Rokuss*, Nico Disch*, Julius Holzschuh*, David Zimmerer*, Klaus H. Maier-Hein. “SAM.MD: Zero-shot medical image segmentation capabilities of the Segment Anything Model,” *Medical Imaging with Deep Learning (MIDL), short paper track*, 2023. [[PDF](#)]
 7. **[BVM 2023]** Fabian Isensee*, Constantin Ulrich*, [Tassilo Wald](#)*, Klaus H. Maier-Hein. “Extending nnU-Net is all you need,” *Bildverarbeitung für die Medizin (BVM)*, 2023. (Oral) [[PDF](#)]
 8. **[NOA 2022]** Irada Pflueger*, [Tassilo Wald](#)*, Fabian Isensee, Marianne Schell, Hagen Meredig, Kai Schlamp, Denise Bernhardt, Gianluca Brugnara, Claus Peter Heußel, Juergen Debus, Wolfgang Wick, Martin Bendszus, Klaus H. Maier-Hein, Philip Vollmuth. “Automated detection and quantification of brain metastases on clinical MRI data using artificial neural networks,” *Neuro-Oncology Advances*, 4(1), 2022. [[PDF](#)]
 9. **[IV 2021]** Michael Weber, [Tassilo Wald](#), J. Marius Zöllner, „Temporal Feature Networks for CNN based Object Detection”, *IEEE Intelligent Vehicles Symposium*, 2021. [[PDF](#)]

Challenges & Hackathons:

1. **[MICCAI Challenge] 1st place of 13**
Jonathan Deissler*, [Tassilo Wald](#)*, “Mediastinal Lymph Node Quantification (LNQ): Segmentation of Heterogeneous CT Data,” 2023 [[Grand Challenge](#)]
2. **[MICCAI Challenge] 1st place of 20**
Fabian Isensee*, Constantin Ulrich*, [Tassilo Wald](#)*, “Abdominal Multi-Organ Segmentation (AMOS) Challenge”, 2022 [[Grand Challenge](#)]
3. **[HiDA Hackathon] 1st place of 4**
[Tassilo Wald](#)*, Michael Baumgartner*, Gregor Köhler*, “AI-HERO Hackathon for Energy-Efficient AI”, 2022 [[Link](#)]

Services & Activities:

- Part of the [Heidelberg.ai](#) non-profit organization for researchers in the field of Artificial Intelligence team since Feb. 2023.
- Reviewer for Unifying Representations in Neural Models (UniReps) workshop hosted at NeurIPS 2023, Bildverarbeitung für die Medizin (BVM) 2020-2022, Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2021-2022 (allegedly), Nature methods 2022-2023 (allegedly).
- Maintainer of nnU-Net, a self-configuring method for 3D medical image segmentation, since 2023.
- Tutorial Speaker on “Multi Task Learning in medicine” in the scope of the “Advanced Deep Learning” Tutorial for BVM 2022.
- Scholarship holder of “Deutschlandstipendium” awarded to 300 engaging and talented students out of 23.920 enrolled students in KIT 2017-2018.